SECTION 3.0

Purpose and Need

SECTION 3.0

Purpose and Need

The San Francisco Electric Reliability Project (SFERP) will consist of three combustion turbines with a total combined output of 145 MW. The California Independent System Operator (CAISO) has confirmed that the SFERP, in combination with the construction of a number of planned transmission projects, will enable closure of the entire Hunters Point Power Plant.

Replacement of existing in-City generation with a new flexible project, like the SFERP, that is equipped with advanced emissions control technology, will improve air quality and electric reliability. The SFERP should also support eventual closure of the Potrero Power Plant, particularly units 4, 5 and 6, as energy efficiency improvements, renewable resources, distributed generation and additional transmission facilities are added in and around San Francisco.

3.1 Policy Overview

For over 4 years, closure of the Hunters Point Power Plant has been a City objective. On July 9, 1998, the City entered into an agreement with Pacific Gas and Electric Company (PG&E) that provided for the shut down of the Hunters Point Power Plant "as soon as the facility is no longer needed to sustain electric reliability in San Francisco and the surrounding area and the FERC authorizes PG&E to terminate the Reliability Must Run (RMR) agreement for the facility" (CCSF, 1998). Since then, the City has been working with the CAISO, PG&E and the Hunters Point and Potrero communities to identify and build the facilities needed to provide for closure of the Hunters Point Power Plant without an adverse impact on reliability.

More recently, the City's interest in closing down the Hunters Point Power Plant has been extended to limiting use of and eventually closing down all existing in-City generation. On May 21, 2001, the Board of Supervisors passed Ordinance 124-01, which set forth conditions for the siting of new generation in Southeast San Francisco. This ordinance requires closure of Hunters Point Power Plant, clean up and limitations on use of Potrero units 4, 5, and 6, and clean up and eventual closure of Potrero Unit 3.

On November 21, 2002, the Board of Supervisors passed Resolution No. 827-02. In this resolution, the Board of Supervisors adopted the Electricity Resource Plan developed by the City's Public Utilities Commission and the Department of Environment (SF Electricity Resource Plan) "as a policy guideline to be used in proposing and implementing specific actions, subject to the requirements necessary to comply with environmental laws, including an analysis of alternatives and mitigations..."

The SF Electricity Resource Plan establishes the following priorities (SFPUC and San Francisco Department of Environment, 2002):

- Maximize Energy Efficiency
- Develop Renewable Power
- Assure Reliable Power

- Support Affordable Electric Bills
- Improve Air Quality and Prevent Other Environmental Impacts
- Support Environmental Justice
- Promote Opportunities for Economic Development
- Increase Local Control Over Energy Resources

To achieve these goals and allow for closure of existing in-City generation, the SF Electricity Resource Plan provides for development of a portfolio of new energy resources that includes energy efficiency improvements, renewables, distributed generation using renewable and clean technologies, transmission additions and new highly-efficient and operationally flexible generation at appropriate sites. The SFERP is part of the generation component of the SF Electricity Resource Plan. The City remains committed to maximizing energy efficiency, developing renewable power, encouraging clean distributed generation and supporting needed transmission additions. Nonetheless, the siting of new generation is also necessary in order to enable the closure of the Hunters Point Power Plant in the near term, to support closure of units at the Potrero Power Plant in the longer term, and to meet grid reliability requirements.

Both the SF Electricity Resource Plan and the SFERP support the statutory mandates to the California Energy Commission: (1) "to ensure that a reliable supply of electrical energy is maintained" (Public Resources Code (PRC) § 25001); (2) that "It is necessary that California both protect environmental quality and site new powerplants to ensure electricity reliability" (PRC § 25009); (3) that "The commission shall use these assessments and forecasts [i.e., the IEPR] to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy and protect public health and safety." (PRC § 25301 (a)); (4) the Commission "… formally specify statewide and service area electrical energy demands to be utilized as a basis for planning the siting and design of electric power generating and related facilities" (PRC § 25216 (b)); and (5) "the commission shall certify sufficient sites and related facilities which are required to provide a supply of electric power sufficient to accommodate demand…." (PRC § 25500.5)

In addition, by providing for improvements in reliability and air quality, the SF Electricity Resources Plan and the SFERP supports the general policy determinations of both the California Energy Commission's (CEC's) Integrated Energy Policy Report and the Energy Action Plan endorsed by the CEC, the California Public Utilities Commission, and California Power Authority.

3.2 Technical Background

The City and County of San Francisco (CCSF) is served by a combination of power imported over the high voltage transmission system and by power produced by generating units located within the City. At present, there is insufficient transmission capacity to reliably meet all of the City and peninsula's electrical loads. Therefore, both transmission and generation resources are necessary to reliably serve San Francisco and the peninsula.

3.2.1 Generation

In-City generation consists of two natural gas fired boiler-steam turbine-generator power plants. The 46-year-old, 163 megawatt (MW) Hunters Point Power Plant Unit 4 is owned by

PG&E and the 39-year-old, 206 MW Potrero Power Plant Unit 3 is owned by Mirant Potrero, LLC (Mirant). In addition, the Hunters Point Power Plant includes one 28-year-old, 52 MW, diesel-fuel-fired peaking turbine (Hunters Point 1). Potrero Power Plant also includes three 28-year-old, 52 MW, diesel-fuel-fired, peaking turbines (Potrero 4, 5, 6). In combination, these plants provide 570 MW of local generation (SFPUC and San Francisco Department of Environment, 2002).

Due to environmental restrictions, the operation of each of the diesel fuel-fired, peaking turbines in San Francisco is limited to no more than 877 hours per year. The steam generating units, Potrero Unit 3 and Hunters Point Unit 4, must meet increasingly stringent NO_x restrictions under Bay Area Air Quality Management District (BAAQMD) regulations. Specifically, each generation owner's Bay Area fleet of fossil-fueled power plants must meet the following average NO_x emission levels:

Jan. 1, 2002 - 47 parts per million (ppm)
Jan. 1, 2004 - 31 ppm
Jan. 1, 2005, - 15 ppm

For Potrero Unit 3 to continue to operate in compliance with BAAQMD NO_x limits, Mirant plans to install selective catalytic reduction (SCR) equipment in 2005 (While SCR equipment is installed on Potrero Unit 3, the unit will be out of service for an extended period of time creating an additional reliability challenge. Timing of the outage will be critical).

To continue operation of Hunters Point Unit 4 and remain in compliance with maximum BAAQMD NO_x emissions levels, PG&E intends to use interchangeable emission reduction credits (IERCs) and thus temporarily avoid the installation of SCR equipment. In the context of an appeal to the BAAQMD Hearing Board regarding the issuance of IERCs, PG&E has reached a settlement with community groups for use of IERCs through 2005. IERCs may be available for limited operation of Hunters Point Unit 4 for short periods beyond 2005. However, if Hunters Point Unit 4 is to continue to operate over a longer term, it will require substantial NO_x emission control equipment retrofits.

Table 3-1 below describes the existing power generation in San Francisco.

In addition to the in-City generation presented in Table 3-1, there is a 25 MW, combined-cycle combustion turbine generating unit on the peninsula, United Cogen.

TABLE 3-1
In-City Generation, Output and Fuel Type

Plant	Unit	Size (MW)	Fuel Type	In Service Date
Potrero	3	207	Natural Gas	1965
	4	52	Diesel	1976
	5	52	Diesel	1976
	6	52	Diesel	1976
Hunters Point	4	163	Natural Gas	1958
	1	52	Diesel	1976

3.2.2 Transmission System

The transmission system that supplies electricity to the peninsula and San Francisco is insufficient to serve the load in these areas without some in-area generation. There are four major constraints to the physical importation of electric power to San Francisco from other areas of the State. The first constraint is a restriction of the import capability into the Greater Bay Area (GBA). The second constraint is a restriction on the amount of power that can be transmitted to the peninsula from the East Bay. The third constraint is a restriction in the amount of power that can be supplied to the northern peninsula, including the City. And the fourth constraint involves capacity limitations on the 115 kV underground cable transmission system north of Martin Substation into the City (R.W. Beck et al., 2002).

The GBA transmission system consists primarily of four major outlying 500/230 kV substations (PG&E's Vaca-Dixon, Tesla and Metcalf substations and WAPA's Tracy substation) and a network of 230 kV "import" circuits across the boundary. The capability of the 500/230 kV transformer banks and 230 kV lines determine how much power can be imported into the GBA. The limited capacity of these facilities requires support from generation located within the GBA to meet GBA load requirements. Consequentially, the CAISO is forced to enter into RMR agreements to secure a large amount of generating capacity within the GBA. These RMR agreements allow the CAISO to dispatch generators or obtain load reductions when necessary to maintain local area reliability. In September 2003, the CAISO calculated that 4,331 MW of RMR capacity was needed in the GBA, even considering the requirements met by municipal and Qualifying Facility generation that can already be relied upon to be online when needed (Kott, 2003).

A further constraint to serving San Francisco's electrical load arises from the limited transmission capacity from the East Bay into the San Mateo substation. There are only two sets of 230 kV transmission lines (and two sets of smaller 115kV transmission lines) that interconnect the San Mateo substation with the East Bay. One 230 kV line crosses the Bay parallel to the San Mateo Bridge. The other 230 kV line crosses the Bay parallel to the Dumbarton Bridge. Due to capacity limitations on these lines, some peninsula-based generation must be operated during peak load and contingency conditions to prevent overloading these lines.

An additional limiting condition currently exists north of the San Mateo substation. To prevent overloading the transmission lines serving the upper peninsula and San Francisco at certain load levels and maintenance conditions, a minimum level of generation must be operating at Hunters Point Power Plant and/or Potrero Power Plant.

Finally, a capacity limitation exists on the 115 kV underground cable transmission system from the Martin Substation into the City. This constraint limits the efficacy of transmission projects, such as the Jefferson-Martin line, in increasing the load-serving capability of the City.

The peak electrical load for San Francisco and the peninsula significantly exceeds the load serving capability of the electric transmission system. This, combined with the fact that generation located in or near San Francisco is the most effective generation in the GBA for relieving transmission constraints, has prompted the CAISO to designate all the units at Hunters Point Power Plant and the Potrero Power Plant as RMR units for 2004 (Kott, 2003). These units are needed to relieve constraints on all the electrical paths to and within the GBA, the peninsula, and north of San Mateo as described above.

Given the significant transmission constraints in the area, since its inception, the CAISO has dedicated particular attention to studying the system in San Francisco and the peninsula and has identified numerous recommended transmission system improvements. Since 1999, the CAISO has been evaluating the need for an additional 230-kV line from the Peninsula into the City to relieve the constraint north of San Mateo substation. In 2002, the CAISO Governing board approved the Jefferson-Martin transmission line to transport additional power up the peninsula from the GBA. PG&E has applied for a certificate of public convenience and necessity (CPCN) from the California Public Utilities Commission (CPUC) for the Jefferson-Martin line. This case is currently being processed by the CPUC. In the context of the 2003 transmission planning process, additional transmission projects have been identified that could improve the effectiveness of the Jefferson-Martin line and otherwise increase load servicing capability in the peninsula and San Francisco areas as well as potentially reducing GBA RMR requirements.

3.3 Benefits of SFERP and Consistency with City Energy Policy

3.3.1 Closure of the Hunters Point Power Plant and Other In-City Generation

Construction of the SFERP, in combination with the construction of a number of planned transmission projects, will provide for sufficient electric reliability to facilitate the closure of Hunters Point Power Plant in the near term and will support closure of units at the Potrero Power Plant in the longer term.

The CAISO will determine whether the RMR agreement for Hunters Point Power Plant can be terminated. Accordingly, the City has held extensive discussions with the CAISO to clarify the conditions necessary for the CAISO to conclude that the Hunters Point Power Plant is no longer needed. These discussions have resulted in two letters and additional recent guidelines that delineate the requirements for closure of the Hunters Point Power Plant.[1]

These communications indicate that three combustion turbines located north of Martin and connected to the City's 115-kV system would provide for closure of the entire Hunters Point Power Plant (i.e. both Units 4 and 1) provided that the following transmission projects are in place:

- Newark-Ravenswood 230-kV Line Rerate (complete)
- Ravenswood-San Mateo 115-kV Line Rerate (complete)

[1] In the first letter the CAISO has indicated that if Hunters Point Unit 4 is retired before 2005, "there is inadequate load serving capability to serve the expected load in the San Francisco peninsula Area, unless additional generation and/or transmission reinforcement is constructed to support load growth in the area." Terry M. Winter, President and Chief Executive Officer, CAISO, Letter to Kevin Dasso and Theresa Mueller, April 18, 2003 (April 18, 2003 CAISO letter). The CAISO has further concluded that Hunters Point Power Plant Unit 4 could be replaced by four combustion turbines if: 1) these are electrically connected to the internal San Francisco 115 kV transmission network, 2) these are capable of providing no less than 495,000 MWh per year; and 3) a series of transmission projects that are currently either completed or planned are in place:

- Newark-Ravenswood 230-kV Line Rerate (complete)
- Ravenswood-San Mateo 115-kV Line Rerate (complete)
- Tesla-Newark #2 230-kV Line Rerate/Upgrade (complete)
- Ravenswood 230/115-kV Transformer (under construction, expected completion date May 2004)
- San Mateo-Martin #4 Line 60 115-kV Voltage Conversion (under construction, expected completion date June 2004)
- Potrero-Hunters Point (AP-1) 115-kV Underground Cable. (permitting underway, expected completion date either 2004 or 2005 depending on the route chosen).

- Tesla-Newark #2, 230-kV Line Rerate/Upgrade (complete)
- Ravenswood 230/115-kV Transformer (under construction, expected completion date May 2004) (PG&E, 2003a)
- San Mateo-Martin #4 Line 60 to 115-kV Voltage Conversion (under construction, expected completion date June 2004) (PG&E, 2003b)
- Potrero-Hunters Point (AP-1) 115-kV Underground Cable (permitting underway, expected completion date either 2004 or 2005 depending on the route chosen) (PG&E, 2003c).
- Bundling of the Tesla – Newark # 2, 230-kV line (proposed to be in-service May 2005)
- Reconductoring of the Ravenswood – Ames 115-kV lines #1 and #2 (proposed to be in-service May 2005)

Communications from the CAISO suggest that the Jefferson-Martin line could provide for closure of Hunters Point Unit 4 if emergency ratings can be used on certain facilities (discussed further below), and provided that the eight transmission projects listed above are in place. Hunters Point Unit 1 would not be able to close down absent the addition of in-City generation. Two issues will likely affect the CAISO's determination on the amount of generation at Hunters Point Power Plant that it will allow to shut down once the Jefferson-Martin line is in service: 1) whether and how quickly constraints on the 115-kV transmission system in the City are corrected, and 2) RMR needs in the GBA and the economic impact of allowing in-City plants to close down in light of these needs.

In 2003, the CAISO undertook an extensive review of the load serving capability (LSC) of the transmission grid into the peninsula and San Francisco (ACISO, 2003a). (The LSC represents the amount of customer demand that the system studied can serve.) The CAISO's study determined that constraints on the in-City, 115 kV underground transmission system limits the effectiveness of the Jefferson-Martin line in improving San Francisco's LSC. Transmission projects to ameliorate the constraints on the 115 kV transmission system are currently planned to be in-service by 2007. PG&E has argued that with the Jefferson-Martin line in place, Hunters Point Power Plant can be closed down and that the constraints on the 115 kV transmission system can be resolved by changing the emergency ratings on a number of facilities. To date, the CAISO has not concurred with this determination. The City has stated that the impact of PG&E's re-rating proposal should be independently evaluated.

The CAISO is required to ensure efficient use of the transmission system and to reduce to the extent possible the overall economic cost to the state's consumers (California Public Utilities Code §§345 and 345.5). In-City plants are substantially more effective in addressing some of the constraints within the GBA that give rise to the need for RMR capacity than any other generating units within the area. This means that, absent other improvements on the transmission system, if in-City generation is reduced, the CAISO would be required to dispatch substantially more RMR generation to satisfy these constraints. For example, for 2004, the CAISO determined in-City generation to be three to five times more effective than generation in the Delta to address GBA RMR needs (CAISO, 2003b). This feature of the transmission system makes in-City generating units particularly valuable resources to meet certain GBA constraints. These economic considerations may make the CAISO reluctant to

terminate RMR agreements with in-City generation absent the existence of replacement in-City generation.

An October 22, 2003 CAISO letter to the City provides that even with the Jefferson-Martin line in service, the CAISO will require 400 MW of generation north of San Mateo to meet all grid planning and operation needs in the City and the Peninsula. The 400 MW number provides a basis for the City to petition the CAISO to permit closure of the peaking units at Potrero Power Plant (Units 4, 5, and 6) once both the SFERP and the Jefferson-Martin line are in service. Potrero Unit 3 at 207 MW, plus the SFERP at 145 MWs, and United Cogen at 25 MWs, would amount to the 377 MWs, only 23 MWs short of the requisite 400 MWs. Moreover, given the limited allowed hours of operation of Potrero Units 4, 5 and 6, the value of these resources to address GBA needs is limited.

The City is continuing to work with the CAISO to further understand and refine the requirements for in-City generation in a variety of scenarios including with and without the Jefferson-Martin line in service.

3.3.2 The SFERP Will Reduce No_x Emissions and Thereby Prevent Other Environmental Impacts and Support Environmental Justice

The SFERP with its state-of-the-art gas turbine technology will improve San Francisco's air quality. Currently, the Potrero and Hunters Point Plants are the largest stationary sources of air pollutants in San Francisco, particularly oxides of nitrogen (NO_x) and small particulates (PM_{10}).

Table 3-2 presents the emissions per MWh for existing generating units in the City and the projected emissions per MWh of the SFERP. The table illustrates that the biggest emitters among the generating units in San Francisco are the four peaking units in San Francisco, which have minimal emission controls for oxides of nitrogen and produce 25 times more of this pollutant per megawatt hour than the SFERP.

TABLE 3-2
Emissions Per Megawatt-Hour for Existing and Proposed Plants

Plant	NO_x (pounds per MW-hour)	PM_{10} (pounds per MW-hour)
Potrero 3	1.1	0.03
Hunters Point 4	0.7	0.03
Hunters Point and Potrero Peakers	2.4 to 2.9	0.4
Potrero 3 (retrofit)	0.2	0.03
SFERP	0.09	0.06*

* Rubenstein, 2004.

The higher PM_{10} emissions for SFERP reflects the fact that the emission rate for Potrero 3 and Hunters Point 4 is their average emission rate, while the value for SFERP is the proposed permit limit, which is the maximum allowable level at any time, under any operating condition. There is no permit limit on the amount of PM_{10} emitted by Potrero 3 and Hunters Point 4. It is likely that under actual operating conditions, SFERP will emit significantly less particulates than either Potrero 3 or Hunters Point 4.

Replacing Hunters Point Power Plant with a clean new flexible dispatchable plant like the SFERP in combination with retrofitting Potrero Unit 3 with SCR technology would result in a substantial reduction of NO_x from in-City plants. Additional reductions would result to the extent the SFERP provides a basis for retiring the Potrero Power Plant peakers (Potrero Units 4, 5, and 6) once the Jefferson-Martin line is in service. Although operation of the Potrero Power Plant peakers is limited, nonetheless eliminating the peakers will have a beneficial impact on air quality. Based on 2002 data, shutting the Potrero Power Plant peakers would reduce NO_x emissions by 202 tons per year and PM_{10} emissions by 33 tons per year.

In addition, there is a potential that SFERP will cause a reduction in operation of Potrero Unit 3. Currently, because of the long startup times required for steam generator units like Potrero Unit 3, and the very limited hours of operation allowed for the existing peaking units in the City, the CAISO often operates the steam turbines in the City continuously through low load periods, to ensure that there is sufficient generation available to meet higher load periods during the day. Because individual SFERP units can be brought online within 10 to 30 minutes, construction of the SFERP should reduce the need to operate Potrero Unit 3 at minimum load to meet City and peninsula high load hours. Nonetheless, the extent to which the SFERP can support reduced operation of Potrero Unit 3, depends on the extent to which the CAISO continues to seek to operate Potrero Unit 3 to meet GBA needs. The SFPUC will continue to press the CAISO to identify opportunities to limit operation of Potrero Unit 3.

The substantial reduction of air emissions resulting from the closure of Hunters Point Power Plant and the Potrero Unit 3 SCR retrofit are particularly critical in responding to air quality concerns of the Hunters Point and Potrero communities. These communities share a common concern for public health, especially that of children and the elderly. Because all in-City generation has been located in Hunters Point and Potrero, these communities have borne a disproportionate impact from power generation in the City. In recognition of this impact, the City has engaged and will continue to engage in discussions with the Potrero community to identify mitigation measures that respond to community concerns about the siting of the SFERP at Potrero.

3.3.3 The SFERP Will Improve Reliability

Improving reliability is one of the primary justifications for the SFERP. The SFERP will support reliable electric service in San Francisco and the peninsula by replacing old unreliable units with a new highly-reliable technology. The CAISO has already revised the planning standards that apply in the GBA to address the fact that the number of old generating units in the GBA justify a more stringent criteria for that area (CAISO, 2002b). Nonetheless, the concern remains that the City's electric reliability is compromised by reliance on old, undependable generation to meet planning standards.

Recently, the City evaluated the relative reliability of in-City generation as compared to the average reliability of other generating units within the CAISO system. This evaluation was based on publicly available information on the status of generating units posted four times a day on the CAISO website (The CAISO declined to provide hourly unit availability information to the City for this effort).

The evaluation used data from July 10, 2001 through September 20, 2003 and added the time periods when units were curtailed and the amount of the curtailment.[2] The results of these calculations were used to determine the average MW curtailed for each unit within the CAISO system during the time period reviewed, and the equivalent outage rate.

The analysis showed that the outage rate for all units other than the San Francisco/peninsula units is 0.05; whereas, the outage rate for units in San Francisco and the peninsula is 0.14. This means that City/peninsula units are nearly three times more likely to be unavailable to serve load than the units reported for other areas of the CAISO grid. Hunters Point Unit 4 is the most unreliable of the City plants with an outage rate of 0.30, or six times the average outage rate of other units in the CAISO system.

The results of the evaluation are consistent with findings by the CEC reported in the 2003 Integrated Energy Policy Report published December 2003. In that report, the CEC indicated that, "Despite recent improvements in the electricity market as a whole, the Energy Commission is concerned about local reliability in San Diego and the San Francisco peninsula. Both areas experienced serious reliability problems during the energy crisis" (CEC, 2003).

The evaluation of unit outages coupled with the CEC data indicate that it is not necessarily sufficient to apply the CAISO Planning Standards to determine whether reliable electric service will be provided to electric consumers on the San Francisco and the peninsula. The data supports a further conclusion that additional resources are needed now to provide a level of reliability even close to that enjoyed in other areas of California.

In contrast to the old and unreliable generation that currently operates in the City, the SFERP involves new aeroderivative combustion turbine technology. This technology has a very high availability record. Replacing generation that is nearly three times less likely to be available than the average, with this new highly reliable technology will substantially enhance San Francisco/peninsula electrical reliability.

A further benefit of the SFERP is that it will add real power and reactive power into the electrical grid near the load. Thus, the SFERP will provide voltage support, reduce system losses, and increase operational reliability and flexibility. These attributes are true whenever generation is sited close to load and the alternative sources of generation to serve that load must be transported over long and heavily-loaded transmission lines. This is especially true for new generation located within San Francisco as documented by CAISO and CEC Staff in their testimony that comprises the Final Local System Effects section of the AFC for the proposed Potrero 7 Power Plant. (00-AFC-4).

3.3.4 The SFERP Complements a Portfolio of Energy Efficiency, Renewable Resources, and Clean Distributed Generation

The SFERP complements City efforts to develop energy efficiency improvements, renewable resources, and clean distributed generation. To provide for reliable operations, the transmission network in the City and the peninsula needs generation that is both dispatchable and properly located to benefit the network. The SFERP's size and

[2] The analysis excluded data from January 1, 2001 through July 9, 2001 because the data for these dates contained insufficient information and had formatting problems.

configuration enables maximum deployment of energy efficiency improvements, renewable resources and clean distributed generation. Because of its flexibility, the SFERP can be used to complement intermittent renewable resources such as wind. Therefore, at the same time as it is developing the SFERP, the City is aggressively implementing programs to promote energy efficiency and renewable resources.

The SFERP's equipment configuration, consisting of multiple smaller units, offers significant operational flexibility. This should enable the SFERP to accomplish its objective of a prompt closure of the Hunters Point Power Plant with the addition of a relatively small amount of new generation. The SFERP is smaller than Hunters Point Power Plant but has been deemed by the CAISO to be adequate to replace Hunters Point Power Plant if transmission additions that are currently planned are put into place. Further, the SFERP, in conjunction with on-going aggressive deployment of energy efficiency improvements, renewable resources, and distributed generation also supports efforts to reduce the operation of, and ultimately to replace units at the Potrero Power Plant.

Since the SFERP, energy efficiency improvements and renewables are all critical and compatible components of a portfolio of resources to serve San Francisco, the City is continuing to move forward aggressively with initiatives to promote energy efficiency and renewable resources as it develops the SFERP. In 2001, the City created the Mayor's Energy Conservation Account, which directed $25 million to finance aggressive energy efficiency programs in city buildings and facilities. Through the project, the City has already completed energy efficiency projects that targeted a peak demand reduction of over 5 MW including: the installation of LED signals at 1,100 intersections, a comprehensive lighting retrofit at the San Francisco General Hospital, and the installation of efficient refrigerators in Housing Authority facilities. Additional efficiency projects that are planned within San Francisco and at Hetch Hetchy facilities are projected to reduce peak demand by a further 3.7 MWs. The City is also working with PG&E to implement a $16 million program, the San Francisco Peak Energy Pilot Program, to increase electric reliability by reducing peak energy demand in San Francisco by 16 MWs by 2005. The program offers energy saving opportunities for residential and business customers in San Francisco.

As for renewables, the City has installed a 675 kW solar project on the Moscone Center. Projects are also planned for the Southeast Water Pollution Control Plant, Pier 96 and other locations. These projects are projected to result in a peak demand reduction of 1.1 MWs. In addition, the City is implementing a new solar project called Generation Solar to support the development of the solar energy market. The program will provide at least 100 residential and commercial participants with turnkey installation and financing of photovoltaic systems and accompanying energy-conservation measures. The City also has installed 3 MWs of renewable bio-gas cogeneration plants at its wastewater treatment plants.

The City is also supporting energy efficiency and renewables through its Environmental Justice grants program. The program provides funding to local non-profit organizations and businesses to promote energy efficiency, home weatherization and solar projects in the Potrero and Bayview-Hunters Point neighborhoods.

3.3.5 The SFERP Will Support Affordable Electric Bills

The SFERP will reduce costs from existing in-City generation. Closure of the Hunters Point Unit 4 would eliminate the need for costly upgrades to allow Unit 4 to operate in the longer term. These costs would include at a minimum the cost of buying and installing new emissions control equipment, estimated at $15 million and could include significant additional upgrades that have not yet been identified or quantified by PG&E (PG&E, 2003d).

Further, to the extent the SFERP–in combination with energy efficiency improvements, renewables, clean distributed generation and additional transmission–can accelerate closure of the Potrero units, ratepayers could avoid paying the fixed costs of these unit through RMR agreements. Pursuant to a settlement agreement between the CAISO, Mirant Potrero and PG&E, the annual revenue requirement eligible for payment under the RMR agreement for the fixed costs of the Potrero Power Plant from 2002 through 2004 will be $20,522,119 per year (CAISO, 2002a). The fixed costs of the peaking units comprise $1,838,093 of this amount. Although the fixed costs of the peakers constitute a little less than 10 percent of the total fixed costs for Potrero, ratepayers are shouldering these costs to provide for very limited hours operation.

3.3.6 The SFERP Will Increase Local Control Over Energy Resources

The City will own the SFERP. As the City is accountable to its citizens, this ownership model will increase local control of key energy resources. Further, local control should reduce the exposure of San Francisco ratepayers and more broadly the ratepayers of PG&E to the exercise of local market power from in-City generation. Pursuant to a 10-year power purchase agreement between the California Department of Water Resources and the City, the output of the SFERP will be used to serve all PG&E customers on a cost-of-service basis. This approach is preferable to having new strategically located generation in the hands of private entities with a profit incentive. Absent local control, the market power of such entities would only be curbed by imperfect FERC-approved market power mitigation measures.

3.4 References

CAISO. 2003a. San Francisco Peninsula Load Serving Capability, Draft Version 2.0. October 24.

CAISO. 2003b. Reliability Must-Run Study Report, Final Version: Appendix 5, Greater Bay Area. May 19.

CAISO. 2002a. PG&E, Mirant Potrero, LLC and Mirant Delta, LLC, Stipulation and Agreement, FERC Docket No. ER02-64 and ER02-198. November 21.

CAISO. 2002b. California ISO Planning Standards. February 7.

City and County of San Francisco. 1998. Agreement Between the City and County of San Francisco and Pacific Gas and Electric Company to Close the Hunters Point Power Plant. July 9, 1998.

California Energy Commission (CEC). 2003 Integrated Energy Policy Report. December.

California Energy Commission (CEC). Potrero Power Plant Unit 7, Final Staff Assessment section 6.6-7, CEC docket 00-AFC-4. March 26.

DeShazo, Gary. 2003. Testimony of Gary DeShazo on behalf of the California Independent System Operator, CPUC docket A.02-09-043. October 10.

PG&E. 2003a. Transmission and Generation Interconnection Projects status report, Item No. 84, filed in CPUC docket 00-11-001. September 2.

PG&E. 2003b. Transmission and Generation Interconnection Projects status report, Item No. 93, filed in CPUC docket 00-11-001. September 2.

PG&E. 2003c. Transmission and Generation Interconnection Projects status report, Item No. 78, filed in CPUC docket 00-11-001. September 2.

PG&E. 2003d. Direct Testimony of Pacific Gas and Electric Company Regarding the Need for the Jefferson-Martin 230-KV Transmission Project in CPUC Docket No. A02-09-043. October 10.

R.W. Beck, Henwood, Flynn Resource Consultants, Inc. 2000. Final Report Energy Services Study, San Francisco Local Agency Formation Commission. July.

Rubenstein, Gary. 2004. Personal communication with Jeanne Solé. Based on BAAQMD Data. February 20.

Kott, Robert. 2003. Manager of Reliability Contracts, CAISO, memorandum to the CAISO Board of Governors: Management Recommendations for 2004 RMR Designations from the LARS process. September 19.

San Francisco Board of Supervisors. 2002. Resolution No. 827-02: endorsing the electricity resource plan for San Francisco, December 9.

San Francisco Board of Supervisors. 2001. Ordinance No. 124-01 on human health and environmental protections for new electric generation. May 21.

San Francisco Public Utilities Commission (SFPUC) and San Francisco Department of Environment. 2002. The Electricity Resource Plan: Choosing San Francisco's Energy Future, Revised December.

San Francisco Public Utilities Commission. 2003. White Paper: The San Francisco Electrical Reliability Power Project. July 31.

Winter, Terry M. 2003a. President and Chief Executive Officer, CAISO, Letter to Kevin Dasso and Theresa Mueller. April 18.

Winter, Terry M. 2003b. President and Chief Executive Officer, CAISO, Letter to Supervisor Sophie Maxwell. October 22.